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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,059	12/18/2001	John C. Eidson	10010255	8596

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EXAMINER	
MISKA, VIT W	

ART UNIT	PAPER NUMBER
2833	

NOTIFICATION DATE	DELIVERY MODE
03/09/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

Office Action Summary	Application No.	Applicant(s)	
	10/026,059	EIDSON ET AL.	
	Examiner	Art Unit	
	Vit W. Miska	2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6,12-15,17,18,20 and 28-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6,12-15,17,18,20,28-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the applicant's brief filed on 10/20/2008, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

The amendment (request for reconsideration) filed 7/16/2008 has been entered.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/renee s luebke/

Renee Luebke
SPE - AU 2833

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The claim contains the trademark/trade name Styrofoam. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a type of thermal insulator and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 6, 12, 13, 28, 29 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerard et al (5025228).

5. The reference discloses a circuit comprising a circuit board 8,4, electronic component 1 (piezoelectric crystal resonator) mounted on the circuit board, heat conducting structure (metal case 7, col. 4, line 15) immediately adjacent the electronic component and increasing the thermal mass of the electronic component so as to reduce the thermal drift of the electronic component, wherein the electronic component controls the frequency of a signal used by the circuit (a piezoelectric resonator controls the frequency of a circuit), and thermal insulator 21,25 (see col. 3, line 50).

6. With respect to claims 12 and 13, the "oscillator circuit " and "clock circuit" correspond to the "resonator", as disclosed in Gerard et al. Any circuit producing

periodic signals, such as a resonator circuit, is also referred to as an oscillator circuit, clock or clocking circuit, depending upon the application thereof.

7. The term "thermal mass" has not been specifically defined or limited in the specification, and is thus construed with the ordinary meaning thereof. "In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art." (Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003).

Thermal mass is generally defined, as for example in Wikipedia (http://en.wikipedia.org/wiki/Thermal_mass):

Thermal mass (C_{th}, also called thermal capacitance or heat capacity) is the capacity of a body to store heat. It is typically measured in units of J/°C or J/K (which are equivalent). If the body consists of a homogeneous material with sufficiently known physical properties, the thermal mass is simply the mass of material present times the specific heat capacity of that material.

8. In addition, it is observed that all materials have a defined positive specific heat capacity, and therefore a thermal mass corresponding to the total mass thereof. As a consequence of this definition and the laws of physics, it is further observed that the thermal mass of any object or material is increased by adding any other material thereto, regardless of the nature of the added material (e.g.

irrespective of whether the material is more or less heat conductive, or more or less thermally isolating).

9. In view of the above stipulations, heat conducting structure 7 (made of metal, see col. 4, line 15) increases the thermal mass of component 1 in the same manner as applicant's heat conducting structure 14.

10. The term "thermal drift" has been noted by applicant at page 1 of the specification: "A variation in the characteristics of an electronic component with temperature may be referred to as thermal drift". By such definition, heat conductive structure 7 reduces thermal drift of resonator 1 by increasing the thermal mass thereof. Such interpretation has been previously applied in the BPAI decision of 6/20/2007 at page 10, lines 9-15.

11. Claim 4, 18 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikushima (5912592).

12. The reference discloses in Figs. 2a(a)-(c)a circuit comprising a circuit board 38, electronic component 53 (piezoelectric crystal element) mounted on the circuit board, heat conducting structure, including ceramic case 31, 33,34,39 (col. 19, lines 50, 60-63) around component 53, immediately adjacent the electronic component and increasing the thermal mass of the electronic component so as to reduce the thermal drift of the electronic component,

wherein the electronic component controls the frequency of a signal used by the circuit (piezoelectric element 53 is part of piezoelectric oscillator circuit 30, controlling the frequency of the circuit).

13. With respect to the thermal mass and thermal drift, the observations noted above in the rejection of claim 1 likewise apply here. It is clear that ceramic case 31,33,34,39 defines a thermal mass, as in applicant's structure, thus increasing the thermal mass of component 53. Moreover, the reference states at col. 20, lines 54-64:

> Furthermore, influence of heat upon the piezoelectric element can be minimized. As described above, the piezoelectric oscillator 30 according to this embodiment is a compact oscillator in which the semiconductor integrated circuit apparatus, such as an IC chip, and a piezoelectric element, such as a SAW resonator, are sealed. Furthermore, even if heat is generated from a semiconductor integrated circuit apparatus adapted to high frequency, excellent performance can be maintained and reliability can be maintained for a long time.

Therefore, one of the objects of the device of the reference is to reduce the effects of heat, or thermal drift, upon the circuit, as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 14, 15, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weppler (5661700) in view of Gerard et al (5025228).

15. Weppler discloses a communication network (Fig. 1) comprising several interconnected modules 14, each including microprocessor 28 with a crystal oscillator 43 (col. 4, line 52), and means 28,36,39,43 for synchronizing a local time value in the clock circuit (col. 5, lines 48-52). The reference does not disclose details of the crystal of oscillator 43 or the mounting thereof on the circuit board of module 14. The sensitivity of piezoelectric crystals to heat and other environmental factors resulting in drift is well known to the designers of oscillator circuits. One of ordinary skill in the art would provide a suitable crystal and mounting structure for oscillator 43 to enable stable operation and to minimize drift thereof, as discussed at col. 6, lines 58-60. It would be obvious, therefore, to use the piezoelectric crystal and mounting details of Gerard et al noted above with respect to claim 1, for the oscillator crystal of Weppler in order to reduce the effects of drift associated with heat and enhance stability of the oscillator circuit.

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weppler (5661700) in view of Kikushima (5192592). For reasons similar to those in the preceding paragraph, it would be obvious to one of ordinary skill in the art to use the teachings of Kikushima and use a ceramic thermal case, as set forth above in the rejection of claim 4, to provide a stable crystal oscillator and

mounting structure in Weppler in order to minimize effects of heat on the oscillator circuitry.

17. Claim 32 is further rejected under 35 U.S.C. 103(a) as being unpatentable over Gerard et al (5025228) in view of McLellan et al (5913552). The use of Styrofoam as an insulator for heat sensitive electronic devices is known, for example from McLellan et al (col. 4, line 62) suggesting use in a heat shield 9 for a circuit 2 and crystal 8. In view of the heat insulating properties of enclosure 21 and the other components of the oscillator mounting in Gerard et al (see col. 3, lines 50-51), it would be obvious for one of ordinary skill in the art to use a conventional Styrofoam insulator for enclosure 21,25 or as an additional enclosure for the structure disclosed to provide heat insulation for the oscillator circuit, as taught by McLellan et al.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references cited disclose heat sinks, enclosures and related structures for electronic devices and circuits.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vit W. Miska whose telephone number is 571-272-2108. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee Luebke can be reached on 571-272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vit W. Miska/
Primary Examiner, Art Unit 2833